

CLAIMS:

We claim:

1. A hardware-implemented color video data correction filtering system, comprising:

a plurality of linearization tables to gamma decompensate input color video data referenced to a non-linear color space;

5 a plurality of a set of pre-calculated gamut shifting arrays to compensate for color point data of a plurality of constituent colors of a color monitor with each set of pre-calculated gamut shifting arrays coupled to one linearization table of the plurality of linearization tables;

10 a plurality of hardware adders with each hardware adder coupled to one of the set of pre-calculated gamut shifting arrays; and

a plurality of non-linearization tables coupled to the plurality of hardware adders to compensate for non-linearities of the color monitor and produce output color video data compensated for non-linearities and color points of the color monitor.

15 2. The color filtering system of claim 1, wherein the plurality of linearization tables comprises three linearization tables, the set of pre-calculated gamut shifting arrays comprises three pre-calculated gamut shifting arrays, the plurality of a set of pre-calculated gamut shifting arrays comprises nine pre-calculated gamut shifting arrays, the plurality of non-linearization tables comprises three non-linearization tables, and the plurality of constituent colors comprises three constituent colors.

20 3. The color filtering system of claim 1, wherein the non-linear color space is an sRGB color space.

4. The color filtering system of claim 1, wherein the plurality of a set of pre-calculated gamut shifting arrays is stored in a plurality of look-up tables.

25 5. The color filtering system of claim 1, further comprising:

a graphics controller coupled to the plurality of pre-calculated gamut shifting arrays, wherein compensation for color point data through utilization of the plurality

of pre-calculated gamut shifting arrays is performed at the full processing speed of the graphics controller.

6. The color filtering system of claim 1, wherein the input color video data is input from a website.

5 7. The color filtering system of claim 1, wherein the non-linearities of the color monitor comprise an input-output characteristic for each constituent color of the color monitor.

8. A computer system, comprising:
a processor;
video memory coupled to the processor; and
a color video data correction filtering system coupled to the processor, the system comprising:

a plurality of linearization tables to gamma decompensate input color video data referenced to a non-linear color space;

10 a plurality of a set of pre-calculated gamut shifting arrays to compensate for color point data of a plurality of constituent colors of a color monitor with each set of pre-calculated gamut shifting arrays coupled to one linearization table of the plurality of linearization tables;

15 a plurality of hardware adders with each hardware adder coupled to one of the set of pre-calculated gamut shifting arrays; and

20 a plurality of non-linearization tables coupled to the plurality of hardware adders to compensate for non-linearities of the color monitor and produce output color video data compensated for non-linearities and color point of the color monitor.

9. The computer system of claim 8, wherein the plurality of linearization tables comprises three linearization tables, the set of pre-calculated gamut shifting arrays comprises three pre-calculated gamut shifting arrays, the plurality of a set of pre-calculated gamut shifting arrays comprises nine pre-calculated gamut shifting arrays, the plurality of non-linearization tables comprises three non-linearization tables, and the plurality of constituent colors comprises three constituent colors.

10. The computer system of claim 8, wherein the plurality of constituent colors referenced to the non-linear color space are from a website.

11. The computer system of claim 8, wherein the non-linear color space is an sRGB color space.

5 12. The computer system of claim 8, wherein the plurality of pre-calculated gamut shifting arrays is stored in a plurality of look-up tables.

13. The computer system of claim 8, wherein the non-linearities of the color monitor comprise an input-output characteristic for each constituent color of the color monitor.

10 14. The computer system of claim 8, further comprising:
a graphics controller coupled to the plurality of pre-calculated gamut shifting arrays, wherein compensation for color point data through utilization of the plurality of pre-calculated gamut shifting arrays is performed at the full processing speed of the graphics controller.

15 15. A hardware-implemented method of color video data correction filtering, comprising the steps of:

gamma decompensating input color video data referenced to a non-linear color space;

20 compensating for color point data of a plurality of constituent colors of a color monitor by applying a plurality of pre-calculated gamut shifting arrays to the color point data; and

25 compensating the color point data after application of the plurality of pre-calculated gamut shifting arrays for non-linearities of the color monitor by applying a plurality of non-linearization tables to the color point data to produce output color video data compensated for non-linearities and color points of the color monitor.

16. The method of claim 15, wherein the input color video data referenced to the non-linear color space is from a website.

17. The method of claim 15, wherein the non-linear color space is an sRGB color space.

18. The method of claim 15, wherein the plurality of pre-calculated gamut shifting arrays are stored in a plurality of look-up tables.

5 19. The method of claim 15, wherein each of the steps of gamma decompensating, compensating using the plurality of pre-calculated gamut shifting arrays and compensating using the plurality of non-linearization tables is performed at a substantially full video rate.